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ABSTRACT

In an attempt to correlate effective school practices with actual observed student achievement, a survey instrument concerning principal leadership and school climate was distributed to classroom teachers in the Oklahoma City Public Schools. Responses by more than half of the teachers yielded 1,294 usable questionnaires representing all 94 schools in the district. The analyses in this paper focus on factor analysis of the 78-item teacher survey data after aggregation to the school level. Constructs represent mean principal ratings and within-school cohesiveness. Student achievement scores in math and reading were aggregated to school-level means. The correlations for the entire sample were positive, indicating that the higher achieving schools tended to be the ones where principals had high (mean) survey ratings, and where teachers were relatively cohesive or likeminded regarding their principal and school climate. The mean responses and the cohesiveness measures were also entered into factor analyses with the school as the unit of analysis. The first and largest factor in the analysis of mean survey responses was largely a measure of the principal as an effective interpersonal leader who commands the respect and support of the school staff. However, this factor diminishes by the time students reach ninth grade and above. Six references are listed. The appendixes, comprising over half of the document, display data tables which present the factor analysis results and the correlation results of survey items with achievement. (MLF)

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RELATIONS OF WITHIN-SCHOOL COHESIVENESS AND PRINCIPAL RATINGS WITH ACHIEVEMENT

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Relations of Within-School Cohesiveness and Principal Ratings with Achievement

Introduction

It seems an unfortunate trend that when an area of research becomes popular as has happened with so-called "school effects" research, many of the reported studies provide relatively little empirical data to support (or refute) basic assumptions. As an example, a recent paper presentation session on "Assessing Effective Schools" in Division H at the 1984 American Educational Research Association convention contained five papers (Pink and Wallace, 1984; Schweitzer, 1984; Chase, 1984; Hall and Chase, 1984; Sanders, et al., 1984). Only one of the five employed any attempt to relate local questionnaire data to observed student achievement (Schweitzer, 1984). The remaining papers were reports of studies in which the literature was reviewed, aspects or components of "effective" schooling were extracted and surveys were developed (and used) that were based on those components. The researchers were apparently content to rely on the reviews of the literature to provide an operational definition of effective schooling practices (practices that would be expected to be effective, regardless of region, grade levels, or types of schools).

The assumption must be that if there has been any empirical evidence suggesting that a particular survey item or set of items has been related to worthwhile outcomes in prior research, then it

must be similarly related in the context of their current investigation. This assumption may not be warranted. The practice of giving applied feedback to school district decision-makers based on such survey responses may lead to recommendations that are unrelated to, or even contrary to, effective practices in that local setting.

In this study, the approach was to attend to the prior research in the process of developing the survey, and then to correlate survey responses with actual observed student achievement aggregated to the local school level. This process provides the capability of providing decision-makers with empirical data regarding between-school differences, as well as the ability to relate variance on particular survey items to observed achievement at the school level. In the process of aggregating individual teacher responses (on the survey) to the school level, the mean response on each item for each school was preserved, along with the within-school standard deviation (amount of variation among teachers) for each item.

The responses of each of the teacher survey items regarding the principal and the school climate was represented by two distinct constructs. The first is a measure of the mean rating given at that school, and the second is a measure of the amount of variation among teachers within that school. The mean rating can be interpreted fairly straightforwardly. It represents the school-wide average rating of the principal, by all teachers who returned questionnaires. A high mean indicates a positive or favorable perception by the teachers at that school.

In addition, the within-school standard deviation was multiplied by -1.0 to produce an index of "cohesiveness" among teachers within each school. For example, if all teachers at a particular school responded "always" to item #1 "The principal promotes school sponsored activities", then that school would show the lowest possible variance (0). However, a second school where some teachers responded "seldom" or "never" would have a higher (non-zero) within-school standard deviation.

By multiplying the standard deviation by -1.0 to produce a measure of "cohesiveness" (operationally defined as the inverse of the standard deviation), the rank order of the two schools described above would be reversed. The school with zero variance would have the highest possible value on cohesiveness, while the school with non-zero variance among teachers would be ranked lower. As will be shown later in this report, the degree of cohesiveness or "likemindedness" among teachers within a school can be a predictor of student achievement at the school level.

Method

Subjects

The Leadership/Climate Inventory survey device was developed in mid-year of the 1983-84 academic year, and copies were distributed to all of the (approximately 2,500) classroom teachers in the district in March of 1984. More than half of the teachers responded, yielding 1294 usable protocols. All 94 schools in the

district were represented in the data (with an average of 13.8 teacher questionnaires per school). With such a large number of teachers responding (and such a high percentage of the total population), we may be reasonably confident that the population of all OCPS teachers was adequately sampled. Although individual teachers could not be identified, respondees were asked to indicate their school. This permitted aggregation and anaylsis of school-level data. Principals were assured that individual schools would not be identified to administrators or in any research report. Any presentation of data is for groups of schools only (for example, schools grouped by grade-level).

One of the main reasons for administering the survey to teachers was to be able to give feedback to principals on how they were rated by their staff. This feedback occurred during the Spring semester of 1984. Results from computer printouts were translated onto a blank questionnaire to show each principal: (1) his or her own mean ratings on each item, and (2) a "comparison mean" representing the average on that item for all schools at the same grade-level as that particular principal.

Instruments

Student achievement scores were aggregated to school-level means for Total Reading and Total Math. NCE (Normal Curve Equivalent) California Achievement Test scores were utilized. School-level means represent the between-school measure of achievement in the anaylses with the school as the unit of analysis. Two

years of achievement data were analyzed: from May 1983 and May 1984. Those district-wide testing occasions are used as pre-score and post-score measures for the 1983-84 academic year.

The survey of principal leadership and school climate was developed and used during the 1983-84 academic year. Teachers completed the questionnaire in March and April, 1984 and principals were given feedback in May, 1984. The questionnaire consisted of 82 items, grouped (a priori) within the following 8 subsections:

A. High Expectations
B. Instructional Leader
C. Forceful/Dynamic
D. Consulting Others Effectively
E. Creating Order/Discipline
F. Resources
G. Using Time Well
H. Evaluating Results

A second questionnaire was sent to Elementary and Fifth Year Center principals during the Spring semester (1984). This instrument was a short (10 item) survey concerning the allocation and use of instructional time at each school. This survey was not sent to Middle School and High School sites because the upper grades curriculum does not yield satisfactory estimates of the "typical" students' time use by category. In the early grades it is possible

to estimate how much time a typical student will spend in various activities (of an "academic" vs. "non-academic" nature). In the upper grades, with some students moving toward vocational and others toward college preparatory programs, it becomes less appropriate or accurate to talk about the instructional content of a "typical" student's time in school.

One other set of variables that was examined came from personnel files. These measures represent educational and professional characteristics of the principals, such as the number of years of experience, type of certification, and level of educational attainment (degree).

The analyses in this paper focus on the teacher survey data, after aggregation to the school-level. Constructs represent mean principal ratings and within-school cohesiveness. The papers by Watson, et al. (1985) and Crawford, et al. (1985) deal with other measures and other units of analysis.

Procedures

The surveys completed by teachers were returned to the research department. Likert-type responses on a 5 point scale for each item were coded for computer analysis. Items left blank or with more than one response marked were coded as missing data. Although individual teachers were not identified, school identification was requested. Surveys without the school identified were not utilized in the analyses. There were 1,294 teacher surveys analyzed. Because

teachers were the sampling units, the first analyses used the teacher as the unit of analysis. These between-teacher analyses were designed to assess the reliability of the survey and to further our understanding of underlying dimensions of the teachers' responses. Those analyses are reported in the Watson, et al. (1985) paper.

Following the reliability and factor analytic studies with the teacher as the unit of analyses, the emphasis shifted to the analyses with the school as the unit of analysis. Since there is one principal per school, these results also represent between-principal variation. The process of aggregating 1294 teacher responses to measures of the 94 schools in the district was accomplished by use of the SPSS (Statistical Package for the Social Sciences) sub-program AGGREGATE.

As mentioned earlier, the aggregation process provided two types of measures for each of the 82 survey items. One measure was the mean rating across all teacher responses from a particular school. Therefore, a survey item where 6 teachers responded "always" (coded as a "5") and 6 teachers responded "usually" (coded as a "4") would have a mean aggregated (school-level) rating of 4.5. The other measure outputted for each item was the standard deviation of the teachers' responses at that school. As described earlier, this measure of variation was inverted (by multiplying by -1.0) so as to represent the construct of within-school "cohesiveness" or "likemindedness". Schools where all teachers gave the

same response to a particular item would show the highest possible value for cohesiveness on that item (zero variation = high cohesiveness).

Following the aggregation and data transformations, intercorrelation analyses suggested much redundancy among the 82 items when the school was used as the unit of analysis. Therefore, the next step was to perform factor analyses. By requesting orthogonal factors (i.e., unrelated factors), we were able to obtain independent measures of teacher perceptions of their principals. This data reduction process also provided a more manageable number of "constructs" from the survey (by not relying on the multicollinear 82 items).

Individual item data and factor scores were correlated with point-in-time school-level achievement for both the school-level means and for the within-school cohesiveness measures. Formal path analyses of effects on achievement growth are reported in the Crawford, et al. (1985) paper.

Results and Discussion

Factor Analyses With the School as the Unit of Analysis

There was a high degree of intercorrelation among individual survey items with the school as the unit of analysis (as there was in the teacher-level analysis reported in the Watson, et al. paper). In order to tap nonredundant information from the survey items and to extract underlying dimensions in the school-level ana-

lyses, factor analytic procedures were used. The procedures included: principal components analysis, followed by varimax rotation. Within a particular analysis, the extracted factors are uncorrelated, though it is possible to have factors from the analysis of means correlated with factors from the cohesiveness measures. There were four items removed from the school-level factor analysis since they were not relevant at all grade-levels (items 28b, 28d, 57c, and 57d refer to counselors and assistant principals, positions not present at all schools). The remaining 78 items were entered into analyses with the N of 94 schools.

A. Analysis of Mean Ratings on Principal Leadership

The factor analyses of the school-level means on the survey items yielded six factors. The first factor accounted for 85.5% of the item intercorrelation variance, indicating a very strong and clear first factor. In fact, only 15 of all 78 items that were analyzed yielded loadings on Factor 1 that were less than .30. The tables in Appendix A show the six factors, the items that load most highly on each factor, and the value of the factor loadings for each item.

Because the strong first factor is a composite of nearly all of the 78 items, it is viewed as representing a general "halo effect" rating of the principal. Watson, et al. found that there was a

similarly predominant first factor in the analyses with the teacher as the unit of analysis. It is interesting to note that there is some overlap among the items that loaded most highly (on the first factor) in the teacher-as-unit and in the school-as-unit analyses. The analyses of school-level means showed that the highest loading 2 items were: (the principal) "Treats staff with respect" (.875), and (the principal) "Is open and friendly" (.821). Other items loading on this factor represent maintaining a positive attitude by the principal, welcoming new ideas, sensitivity to staff, successful reprimanding, meeting staff needs, and engendering pride. This factor appears to indicate a highly rated principal as one who is affectively aware of staff needs, who is well-liked, respected, is supported by staff, and who has effective interpersonal skills.

The second factor extracted in the analysis of mean ratings accounted for only 5.2% of the item intercorrelation. Although certainly far less powerful than the first factor, this 5.2% is more than 1/3 of the variance remaining after the first factor is accounted for. Factor 2 has 16 items loading $\geq$ .50 (see Appendix A). The highest loading items are concerning discipline and conduct ("Creates an atmosphere of order and discipline school-wide" and "Maintains high standards of student conduct"). Other high loading items include: minimizing factors that are disruptive, supporting teachers in their discipline actions, maintaining a climate conducive to learning, demonstrating a commitment to academics, having high expectations of students and communicating of

expectations clearly to teachers. This factor is characterized as representing the principal as one who maintains discipline as a high priority and who expresses his or her concern about academics through attention to conduct and school climate.

The third factor accounted for 3.3% of the total variance. The table for Factor 3 in Appendix A shows seven items that loaded most heavily ($\geq$ .50) on this factor. The third factor in the analysis of means concerns managerial skills of principals. Those with high scores on this factor have effective management practices regarding hiring and supervision of staff and in terms of managing supplies and the budget.

The fourth factor accounted for 2.8% of the total variance in the intercorrelation matrix. There were seven items loading .50 or more. This factor fairly clearly indicates perceived characteristics of the principal regarding parent and community support and shows the highly rated principal as one who promotes school activities and achievement-related events. Principals with high scores on this factor are rated relatively highly by their teachers on promoting school-sponsored activities and maintaining effective communication with parents and community groups.

Factor 5, which accounts for 1.9% of the overall variance, has 8 items that load .45 or higher on it. This factor appears to consist of two components: (1) there are three items (the highest loading ones) that concern administrative regulations and implementation of those regulations, and (2) other items address a commitment to

academic goals, performance, and student rights and capabilities to learn. This factor is less clearly unidimensional than those previously described. This is probably at least partly a function of the way factor analysis operates (the strongest and clearest factors are the first ones extracted). A principal with a high score on Factor 5 is seen by the teachers in that school as concerned about adherence to administrative regulations and concerned about students' academic performance and rights.

The last factor extracted in this school-level analysis of mean ratings accounted for 1.3% of the total variance and had 6 items with loadings $\geq$ .40. Considering that this was the last factor extracted in this analysis, Factor 6 is remarkably clear-cut. Principals with relatively high ratings are perceived as getting out of their office a lot, circulating in the halls, and visiting in classrooms.

To summarize, it appears that the information contained within the original 78 items can be essentially represented in these 6 independent factors. This has implications for interpretation of current results correlated with student achievement and for future survey research (using much-shortened questionnaires).

B. Analysis of Within-School Cohesiveness

The next set of factor analysis results are from the analysis of within-school cohesiveness among teachers on the survey items. As explained earlier, the standard deviation of each item was multiplied by -1.0 to "invert" the construct to create a measure of

cohesiveness or likemindedness, among teachers. Therefore, scores entering into this analysis did not necessarily reflect whether principals were rated high or low on the item, but rather, the degree to which teachers agreed or were all of "like-mind" in their perceptions of their principal.

The factor analysis (94 schools, 78 items) procedures were the same as those used with the mean ratings -- principal components followed by varimax rotation. Eleven independent factors were extracted. These factors form a structure which has some similarities to, as well as some differences from, the factors extracted from the mean ratings on each item. One similarity is that the cohesiveness measures of the 78 items also yielded a very strong first factor. The first factor accounted for 77.7% of the total variance in the item intercorrelation matrix. Only 19 of the 78 items did not load more than .30 on this factor. The appropriate table in Appendix A shows the eleven items with the highest loadings on this factor ($\geq$ .60). Seven of those eleven items were also among the highest loading items on the first factor in the means analysis, suggesting that the factors extracted first in the means and cohesiveness analyses are not independent of each other. It is important to note that we do not know whether high ratings on principal leadership (means) cause high level of teacher cohesiveness, or vice versa; we do infer that the two are related.

The cohesiveness measures with the highest loading on Factor 1 are "Treats staff with respect" (.721) and "Has the support of the

staff" (.700). Other items with high loadings refer to the principal's maintaining a positive attitude, being "open and friendly" and having realistic expectations of teachers. Principals with relatively high scores on this factor are characterized as those who have teaching staffs who are very likeminded regarding the degree to which the principal is a successful interpersonal leader. The principal is seen as a facilitator of horizontal or peer interrelations -- he or she treats the teaching staff with respect and maintains effective communications with them.

Despite the agreement in content of the first factor in the cohesiveness analysis and the prior analysis of means, there were notable differences in the two factor structures (for example, approximately twice as many factors were extracted from the cohesiveness measures).

The second factor in the analysis of the cohesiveness measures showed 15 items with loadings $\geq$ .40. This factor accounted for 3.9% of the total intercorrelation variance. Some of the highest loading items reflect attention to administrative regulations, though the overall factor seems to reflect much more than this. Other high loading items were those concerned with egalitarianism and strong commitment to academics and minimization of disruptions. This factor seems best characterized as combining administrative concern about fulfilling regulations with substantive concern about school climate and student learning.

Factor 3 accounted for 3.5% of the total variance in the inter-correlation matrix. The highest loading items in this analysis refer to the principal as an active, involved, and visible monitor in the school and in classrooms ("Gets out of the office into the building ...", "Is seen in the halls ...", and "Regularly visits and observes in my classroom ..."). A principal with a high score on this factor has a staff with little variance (a great deal of cohesiveness) among their perceptions of the "visibility" of the principal in their building.

The fourth factor extracted (2.7% of the total variance) in the analysis of cohesiveness concerns the orientation of the principal toward discipline and order in the school. The item with the highest loading was "Creates an atmosphere of order and discipline school-wide", with the next strongest item reflecting principals' "Support of teacher's efforts to maintain discipline". Principals with high scores on this factor have staffs with considerable agreement or cohesiveness among themselves on the extent to which the principal is concerned with discipline.

Factor 5 is a fairly clear-cut factor (accounting for 2.4% of the variance). The items with the highest loadings are the ones that measure: degree of involvement of teachers in developing in-service activities, involvement of staff and community in the budgetary process, and involvement of teachers in setting instructional policy. Schools with high cohesiveness on this factor have teachers who agree in their perceptions of the principal as one who involves others in decision-making.

Factor 6 in the analysis of the cohesiveness measures represents 2.1% of the variance. The five items with loadings $\geq$ .40 suggest an index of the principal's orientation toward building materials, supplies, and economic concerns, as well as attention to the selection of qualified staff. Schools where teachers were considerably like-minded on these items would have higher factor scores than schools where teachers disagreed on these items.

Factor 7 does not appear to be as clear-cut as most of the other factors extracted from the survey responses. The two items with the highest loadings refer to principals' actions in promoting school activities or events to recognize student achievement (the principal as a student-oriented manager). Other components of this factor concern effective communication, commitment to academics, and administrative considerations (regarding planning, paperwork and supplies).

Factor 8 in the analysis of cohesiveness measures accounted for 1.8% of the total variance. There were five items with factor loadings $\geq$ .35. The item with the highest loading indicates the degree of support for the principal from Central Office Administration. Other items loading on this factor reflect the principal in a supervisory role, and as one with the support of parents.

Factor 9 represents 1.5% of the total item intercorrelation. There were 4 items loading $\geq$ .35 on this factor. They concern management practices and personnel selection. There is also a component to this factor representing the adaptive or "survival-oriented" nature of the principals' role.

Factor 10 accounts for 1.4% of the total variance and has five items with loadings $\geq$ .30. The items represent measures of the principals' evaluation functions ("gives feedback ...", "uses pupil achievement ...", and "regularly visits and observes in my classroom ...") and managerial and planning skills. The principals with a high score on this factor are viewed by the teachers at their school very similarly with regard to goal-oriented evaluation practices, managerial effectiveness, and planning.

Factor 11 is the last factor extracted in the cohesiveness analysis. This factor accounted for 1.2% of the variance and had six items with loadings $\geq$ .30. Those items reflect an effective interpersonal leadership style in the face of problem situations. This factor has a strong evaluation component, though the evaluation appears to be humanistically and constructively oriented. High scores on this factor represent schools where teachers are in agreement regarding the principal's use of such problem-solving methods.

With few exceptions, the underlying factors identified in these analyses are sensible and interpretable (i.e., they have apparent "face validity"). This method of analysis has allowed us to extract the most essential non-redundant information contained in the teachers' survey responses. The factor scores are more reliable than individual items, because they are based on information from several items, and they represent constructs determined

empirically that reflect teacher perceptions of their principal and school climate. Subsequent analyses will address relations among survey factors on principal leadership, teacher cohesiveness, and student performance.

Correlations With Achievement

There are several ways of assessing the relationships between the survey data and student achievement. The first requirement was to aggregate student achievement scores (for total reading and total math, 1983 and 1984) to the school-level. This production of school means on achievement changes the nature of the achievement construct. The construct no longer directly represents student performance, but rather, school-level performance. The variance on this construct, then, reflects between-school variation on achievement performance (though, between-school performance is not independent of between-student performance).

Once the aggregation of achievement from students to schools has taken place, it is then possible to carry out correlation and regression analyses to determine whether relations exist between school-level survey data and school-level achievement. If such relations are established, there would be an empirical basis for recommendations about ways to increase school-level achievement.

The first correlational results fall under the heading of exploratory data analysis. Several large correlational matrices were produced:

(1) Correlations of means on individual survey items with the four achievement measures (pre and post, total reading and total math) for schools -- an "82 by 4" matrix of correlations.

(2) Correlations of means from survey items with the four achievement measures, separately by grade-level (yielding four correlational matrices, one for each grade-level).

(3) Correlations of cohesiveness measures for individual items with the achievement variables -- for all schools.

(4) Correlations of cohesiveness measures for individual items with achievement, separately by grade-level (again, yielding four separate matrices).

The purpose of these analyses was not to examine individual correlations for a particular item with achievement, but rather to look at the broader picture of the nature of the matrices. If only a few correlations are found to be significant and if there is no consistency in the sign (direction) of the many correlations in the matrices, then there would be little suggestion of meaningful relations among survey items <u>in general</u> and school-level achievement. If, on the other hand, large numbers of the correlations were significant, and a consistency in direction of correlations emerged, it could be concluded tentatively that some predictive relationship exists between teacher survey responses and school-level achievement. Appendix B contains the matrices

of correlations for the means and cohesiveness measures of survey responses with school level achievement scores (for the overall N of 89 sample).

The first matrix examined represents the correlations among achievement scores and the mean survey responses. The achievement scores are school-level means on point-in-time measures of total reading and total math. The "point-in-time" measures do not represent growth or change-over-time. The current correlations give an indication of whether the achievement level of schools at one point in time (in 1983 or in 1984) is related to teacher survey responses.

The matrix of 328 correlations (82 items by 4 achievement scores) shows fairly high consistency. Only 3 correlations were negative in sign and 180 of the 328 were positive and statistically significant at the .05 level. It appears to be accurate to deduce that the schools that have higher point-in-time achievement also have principals who are rated relatively highly by their teachers. It can not be proven whether some characteristics of highly rated principals cause school-level achievement to be high, or whether schools that contain high achieving students cause their teachers to give favorable ratings.

It is accurate to say that the higher achieving schools do have relatively high teacher ratings on school climate and principal leadership, district-wide. The results in the correlation

matrix also make clear a point that was discussed in conjunction with the factor analysis and reliability results -- namely, that the items are highly interrelated. When a particular result is observed for one item (e.g., a positive r with achievement), the odds are good that many (if not all) of the other items will show a similar result, because it has been shown the items share a great deal of their variance.

In addition to calculating item-with-achievement matrices for the overall sample of 89 schools, the same correlations were produced separately by grade level: elementary, fifth-year centers, middle schools, and high schools.* The overall view of these analyses by grade-level was obtained in a manner similar to the analysis across all schools. By examining the matrices for consistency and for number of significant rs, we can determine whether the results of the N of 89 analyses are similar in the different grade-levels. Because of the smaller Ns in these analyses we assign an alpha level of .10 (elementary: N = 55, fifth year centers: N = 13, middle schools: N = 11, and high schools: N = 10).

The elementary results are largely replications of the overall results. There were fewer of the 328 rs that were significant (97 of 328), though this could be expected because of the decrease in power and attenuation of variance. All of the 97 significant

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* Because of the extremely large number of correlations, these results are not presented in the report. Interested readers may contact the authors if they wish to examine the four matrices (328 rs each) calculated by grade level.

correlations were positive, though the number of negative correlations did increase from 3 in the overall analyses to 18 in the elementary-only analyses. Still, the findings in elementary schools are quite consistent in indicating that the schools that are higher achieving (in relation to other elementary schools) also tend to have higher mean ratings by teachers concerning school climate and principle leadership.

The results for fifth year centers were based on analyses with N of 13 schools. The matrix of correlations from fifth year data had 284 positive correlations and 44 that were negative. There were 58 of the 328 rs that were significant ($p \leq .10$), and 55 of those 58 significant correlations were positive. Although the pattern is slightly less clear for fifth year centers than for the overall or the elementary-only analyses, the preponderence of the evidence still suggests positive relationships among mean responses on survey items and school-level achievement. The positive correlations outnumber the negative ones by more than 6 to 1, and only about 5% of the correlations that were significant were negative. The low N (of 13) undoubtedly had some impact on the number of rs that reached statistical significance, in comparison to the overall and the elementary analyses.

The middle school correlations were analyzed next. The middle school results look much different from the overall, elementary, and fifth year results. Only 13 of the 328 correlations were statistically significant with alpha of .10. In a matrix of

independent correlations, with alpha of .10, one would expect 10% or about 32 or 33, correlations to be "significant" by chance alone. Twelve of the 13 "significant" rs were negative, but given the likelihood that they are spurious, one should perhaps not make too much of the fact that most are negative. However, only 52 of the correlations in the matrix were positive, so the majority of the matrix does contain negative rs. The most accurate interpretation of the middle school results seems to be that the mean survey responses do not predict school level achievement. It is difficult to envision a psychologically or educationally sound reason for lower-rated principals to have higher achieving schools (unless achievement at these grade levels is due to other factors, as may be the case).

The next matrix was calculated with N of 10 high schools. The high school results differ from all other matrices quite strikingly. The mean survey responses are significantly negatively correlated with point-in-time achievement scores with the school as the unit of analysis. There were 146 of the 328 correlations that were significant ($p \leq .10$). All 146 were negative correlations. Only 15 of the 328 rs in the matrix were positive. Generally, the high schools with the highest point-in-time achievement were the ones with the lowest principal ratings (in relation to other high schools). The trend at the high school level was much more pronounced than in the middle school results. The most accurate description of the middle school results was

that no clear trend could be identified in relations among mean survey responses and school achievement. However, for high schools, a trend was identified, and it was opposite from the elementary and fifth year findings. It seems that high achieving high schools are high achieving despite relatively low principal ratings.

The selection of content for the survey items was based on desirability of the particular attributes for "effective" schooling, based on previous research literature. Since the high school correlations with achievement were negative, it appears necessary to question the predictive validity of those items, at least for sensible prediction of achievement in the upper grades in this urban district. Certainly these findings raise doubts about principal effects on school achievement in the areas that were tapped by the survey. Since principals with lower ratings were at the higher achieving schools (and vice versa), it seems unlikely that the measured principal characteristics could be causing the observed achievement levels in these schools.

Other possible explanations are only speculations. It may be that by accident (or by design) the principals most likely to receive high ratings by teachers were placed at the lowest achieving schools. It is also possible that the causal determinants of high school achievement are unrelated to teacher ratings of principals. After nine or more years of schooling, achievement becomes less maleable than it is in the early grades.

It may reflect a greater influence of socioeconomic status, internal motivation, and home life than does achievement in the lower grades.

It is also apparent that the high school curriculum has less overlap with achievement test objectives than the curriculum in the lower grades. This is true for middle school as well, though there is probably more overlap in middle than in high schools. For example, the CAT objectives for 9th, 10th, and 11th grades cover reading vocabulary, reading comprehension, spelling, language mechanics, language expression, math computation, math concepts and applications, and reference skills. There are no items or objectives assessing knowledge of history, government, chemistry, physics, psychology, foreign languages, business/accounting, computer skills, vocational skills, literature, upper level geometry, calculus, and trigonometry, all of which are taught at the high school level. Ninth and tenth graders would have only 2 of 6 classes (1/3 of their curriculum) even nominally overlapping with the CAT; eleventh graders would have only 1 of 5 classes (20%) relating to the CAT.

The next results are based on the within-school cohesiveness measures derived from the survey data. Readers are again reminded that these measures represent the inverse of variation. A high score on cohesiveness represents a school where teachers are likeminded with regard to perceptions of their principal's leadership.

The correlation matrices representing the relations of cohesiveness measures with point-in-time achievement are similar to the correlations of mean responses with achievement. This is testimony to the fact that the mean responses and the cohesiveness measures for items are correlated. That is, the schools with relatively high (mean) ratings on particular items also tended to have high within-school cohesiveness on those items, among teachers. Schools where principals were rated lower were those with more variance (i.e., less cohesiveness) among teachers -- some gave high principal ratings and some did not.

The cohesiveness matrix based on all schools (N of 89) had somewhat more significant rs ($p \leq .05$) with achievement than the matrix based on mean responses (225 vs. 180 significant rs). As in the analysis of mean responses, the correlations were positive in sign. Overall, schools with high cohesiveness were the higher achieving schools. All 328 of the correlations were positive.

The elementary-level correlations reflected this same trend, by and large. Only 15 of the 328 rs were negative, and 91 were statistically significant ($p \leq .10$). All of the 91 significant correlations were positive. These results for cohesiveness are similar to the elementary results for mean survey responses.

The matrix of correlations for fifth year centers was also largely composed of positive rs. There were 297 positive correlations (of the 328), and 63 were statistically significant. As with the elementary results, all of the significant rs were positive.

These cohesiveness findings are also quite similar to the results obtained from analysis of means at the fifth-year level.

In the middle school cohesiveness analyses, more correlations were non-significantly positive than in the analyses of mean responses (136 vs. 62). However, these results agreed with the means analyses in not finding more than a chance number of significant rs (only 15 were significant, 13 positive and 2 negative). The conclusion is that the middle school data show cohesiveness to be largely unrelated to point-in-time achievement.

The high school results for cohesiveness are somewhat similar to the findings from high school analyses of mean responses, though there were more significant negative correlations in the matrix based on means. In the cohesiveness results, 71 of the 328 rs were significant, and 68 of those were negative. Of all the correlations, only 27 were positive and 301 were negative at the high school level. It appears that high cohesiveness in high schools is not indicative of high achievement (if anything, the opposite). The same concerns expressed earlier about the appropriateness of the CAT measures as indicators of high school performance also apply here.

Multiple regression analyses were performed to determine the total R^2 associated with the survey responses when school-level achievement is taken as the outcome. The analyses were hierarchical, forced-entry regression models where we systematically varied the order of entry into the regression equation. The survey items were maintained as single predictors, though they were always

entered as a group, on one step. Four items were dropped from the 82, since only some schools had valid data for those variables (concerning assistant principals and counselors). The analyses were only run for the overall, N of 89, sample of schools.

In one analysis, the 78 survey variables were entered (on one step) first, and then prescores were entered. Then, the order of entry was reversed, with prescore entering on step one, and the survey responses entered on the second step. The analyses were replicated in math and in reading and for mean survey responses and cohesiveness measures of survey responses. Results are presented below.

Regression of Achievement on Mean Survey Responses

Reading	R^2 Change
Survey variables entered first (78df):	.94844
Prescores entered last:	.02899
Total R^2 =	.97743
Prescores entered first:	.81426
Survey variables entered last (78df):	.16317
Total R^2 =	.97743

Math	R^2 Change
Survey variables entered first (78df):	.95464
Prescores entered last:	.02084
Total R^2 =	.97548
Prescores entered first:	.77254
Survey variables entered last (78df):	.20294
Total R^2 =	.97548

Regression of Achievement on Survey Measures of Cohesiveness

Reading	R^2 Change
Survey variables entered first (78df):	.91029
Prescores entered last:	.07402
Total R^2 =	.98431
Prescores entered first:	.81426
Survey variables entered last (78df):	.17005
Total R^2 =	.98431

Math	R^2 Change
Survey variables entered first (78df):	.91537
Prescores entered last:	.06339
Total R^2 =	.97876
Prescores entered first:	.77254
Survey variables entered last (78df):	.20622
Total R^2 =	.97876

The above regression results are interesting for several reasons. The fact that the survey predictors and prescores share variance is indicated by the finding that whichever enters on the first step is, by a considerable margin, the strongest predictor. When survey variables enter the regression first, they account for 91% to 95% of the postscore variance (depending on subject matter and whether the survey measures represent mean ratings or cohesiveness). When the prescore variable is entered into the regression analysis first, it accounts for 77% to 81% of the postscore variance (77% in math, 81% in reading).

An even more interesting picture emerges in the examination of the predictors entering the regression equation on the last step.

When forced-entry methods are used as indicated above, the R^2 change for the last predictor (or set of predictors) indicates the portion of the dependent variable variation that is shared with the last predictor independent of the earlier-entered predictors. When the prescore predictors are entered on the last step, they account for only some 2% to 7% of the postscore variance. However, when the survey measures are entered last, they account for 16% to 21% of the postscore variance. This suggests that, even though the survey responses and prescores are strongly intercorrelated, the survey responses (when considered as a group) are more potent predictors of school-level achievement -- even more potent than prescores on school-level achievement. The fact that teacher perceptions of principal leadership may account for 1/6 to 1/5 of the variance in school-level achievement independent of variance attributable to prescores has implications for the improvement of the schooling process. Since the above regression models require 79 degrees of freedom (78 survey responses plus prescore), they can only be run for the overall sample of 89 schools. However, based on the earlier discussion of zero-order correlations among survey variables and achievement, one might speculate that the 68 elementary and fifth year center schools had a considerable influence on the above regression results.

Tables 3. through 7. in Appendix B represent the correlations of survey factors with point-in-time achievement. These correlations were calculated for the overall sample of 89 schools and for each grade-level separately.

The results of the N of 89 correlations showed positive and significant correlations with achievement for factors 3 and 5 from the analysis of mean survey responses. Factor 3 from the analysis of means represents the principal's administrative/managerial skills. The highest loading items were measures of the degree to which the principal selects qualified staff. It seems a reasonable inference that the better administrators who have assembled qualified staff members at their schools are located at schools with relatively high achievement. Factor 5 from the analysis of means is an indicator of compliance with regulations and commitment to academics, student performance, and student rights and welfare. Schools where principals were highly rated on these constructs were also the higher achieving schools.

In the cohesiveness analysis, factors 2, 5, 6, 9, 10, and 11 were found to correlate significantly and positively with achievement (in the means and cohesiveness analyses with N of 89, all significant correlations were positive). Cohesiveness factor 2 represents teacher agreement on the principal's orientation toward regulations and policies and on emphasis of academics and behavior management in the school. The higher achieving schools are those where teachers are likeminded with regard to their principal's performance in these areas. Cohesiveness factor 5 also correlated positively with achievement; it measures the extent of the principal's involvement of significant others in decision-making.

Cohesiveness factor 6 correlated significantly with all four achievement measures. Principals with high scores on this factor have teachers who agree about the degree to which they are provided with necessary materials and are effective managers of the budget and other administrative concerns. The ninth factor extracted in the cohesiveness analyses represents principal adaptivity and selection of qualified personnel; correlations were significant and positive with all four achievement measures. Factor 10 also showed consistently significant and positive relations with achievement. Schools with high scores on this factor have like-minded teachers with regard to their principal's goal-orientation and provision of feedback to instructional staff. The last factor was also positively correlated with achievement. It represents within-school cohesiveness with respect to the principal's problem-solving leadership style.

In addition to the correlations of factor scores with achievement for the overall sample, the correlations were calculated separately for each grade-level. Those results are in Tables 4. through 7. in Appendix B. The analyses of factor relations with achievement by grade-level yielded results similar to the earlier-discussed matrices of individual items with achievement. The elementary and fifth year results showed generally positive correlations (only 2 of 22 significant _rs were negative). The middle school results were mixed (of 13 significant _rs, 4 were negative and 9 were positive), as were the high school results (out of 17 significant correlations, 10 were negative and 7 were positive).

As was the case for the matrices of individual items correlated with achievement, the overall positive correlations were more strongly replicated in the lower grade schools than in the upper grades.

Summary

The analyses reported in this paper moved from the teacher as the unit of analysis to the school as the unit of analysis via the aggregation process. Although teacher identity was not obtained, each survey entering the analysis did identify a school. Therefore, by using a computer program for aggregation, it was possible to generate N of 94 school-level data from the 1294 teacher surveys. The aggregation program outputted two kinds of scores for each of the 82 items: a school-level mean and the within-school standard deviation. The item means can be interpreted fairly straightforwardly as between-school measures of school climate and principal effectiveness. The within-school standard deviations represented the variation in teacher perceptions (within each school) regarding their principal and their school.

The school-level data on mean ratings and on cohesiveness were analyzed in several ways. Items were correlated with point-in-time achievement scores (1983 and 1984) on CAT total reading and total math. The correlations for the entire sample (all grade levels) were positive, indicating that the higher achieving schools in 1983 and 1984 tended to be the ones where principals had high

(mean) survey ratings, and where teachers were relatively cohesive or likeminded regarding their principal and school climate. This was most dramatically apparent in the analyses where survey responses and prescores were entered as predictors of school-level post-scores on CAT achievement. It was possible to account for up to 98% of the variance in school-level post-scores in those multiple regression analyses (i.e., the models were highly accurate). Furthermore, by systematically varying which predictors entered the regression equation first, it was possible to estimate whether survey responses (as a group) were more or less predictive of post-achievement than was pre-achievement. Indications were that the teacher survey responses were more potent than were the pre-scores in predictions of end-of-year 1984 achievement. This was unusual in that such tests of educational or instructional variables usually show less prediction of outcomes than does pre-score.

Other interesting findings were that the overall positive correlations were most clearly replicated at the elementary and fifth year level, with findings mixed or negative in middle and high schools. This led to an examination of the objectives tapped by the CAT, and that examination suggested relatively less overlap between the curriculum and the CAT objectives in the upper grades, in comparison to lower grades.

The mean responses and the cohesiveness measures were also entered into factor analyses with the school as the unit of analysis. The first and largest factor in the analysis of mean survey responses was largely a measure of the principal as an effective interpersonal

leader who commands the respect and support of the school staff. The first factor in the analysis of the cohesiveness measures also reflected perceptions of the principal as an affectively-oriented manager with good interpersonal skills. Several of the highest loading items on the first factor in the analysis of school-level mean responses were also the highest loading items on the cohesiveness first factor. And, ten of the highest loading items on the first factor with the teacher as the unit of analysis were also on the school-level first factors from the means analysis or from the cohesiveness analyses. It appears that the perceptions of individual teachers and the school-wide perceptions were focused on a major underlying dimension representing the degree to which the the principal is a successful interpersonal leader.

The factor scores from the school-level analyses were correlated with school (mean) achievement. The correlations were positive for the overall (N of 89) sample and for elementary and fifth year schools. As was the case for the individual item data, the factor correlations with achievement in the upper grades were mixed or even negative. Beginning in middle school and reaching a high degree in high school, a phenomenon becomes apparent in which the normal or "expected" one-year instructional variables are not reasonably predictive of achievement. CAT total reading and total math measures do not overlap with instruction very much in high schools. By the time students reach ninth grade and above, their total reading and total math performance may be determined more by

motivation, or by an education "accrual" function that represents 9 or more prior years of instruction, or by within-school factors that were not measured in this study. For example, teacher cohesiveness within a school may not matter (as far as achievement scores go) in high school because of departmentalization of curricula.

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Appendix A: Factor Analysis Results with the School as the Unit of Analysis: Measures of Mean Ratings and Cohesiveness

Factor 1: The Principal as an Effective Interpersonal Leader, Commanding Respect and Support of School Staff (Means Items)

Items Loading $\geq$ .70

	Item	Factor Loadings
14.	Involves staff in developing inservice to meet: b) Individual needs	.702
18.	Directly involves teachers in instructional policy	.721
19.	Is a good spokesperson for staff's interests and needs	.708
20.	Is responsive to new instructional ideas	.712
21.	Demonstrates sensitivity to needs of various ethnic groups	.710
23.	Anticipates and adapts to rapidly changing human, social, and environmental conditions	.704
30.	Welcomes new ideas	.771
31.	Maintains a positive attitude	.798
34.	Has the support of the staff	.726
37.	Treats staff with respect	.875
39.	Is open and friendly	.821
40.	Makes teachers proud to be part of this school staff	.743
67.	Reprimands individually, privately, not in front of others	.778
68.	Evaluates staff in such a way as to motivate them to perform better	.707

Factor 2: The Principal as One Concerned About School Climate, Discipline, and Academics (Means Items)

Items Loading $\geq$ .50

	Item	Factor Loadings
2.	Demonstrates a commitment to academic goals	.498
3.	Has a high level of expectations for students' academic performance	.530
6.	Maintains high standards of student conduct	.747
8.	Clearly communicates what is expected of teachers	.578
11.	Assures the safety and welfare of: a) Students	.531
16.	Provides instructional leadership within the school	.531
17.	Maintains climate that is conducive to learning	.579
25.	Uses effective managerial practices	.554
26.	Manages conflict and ambiguity successfully	.523
32.	Consults and make intentions clear	.521
38.	Could be called an "authoritative democratic" leader	.599
41.	Creates an atmosphere of order and discipline school-wide	.788
42.	Supports teacher's efforts to maintain discipline	.667
43.	Minimizes factors that disrupt the learning process	.665
46.	Plans ahead	.603
47.	Effectively maintains records and other paperwork	.545

Factor 3: The Principal as Administrative Manager Regarding Personnel, Supplies, and the Budget (Means Items)

Items Loading $\geq$ .50

	Item	Factor Loadings
28.	Provides adequate supervision of:	
	c) Clerical	.561
52.	Provides staff with necessary materials and equipment	.565
53.	Manages the building budget effectively	.596
54.	Secures school property, equipment and supplies effectively	.614
57.	Selects qualified:	
	a) Teachers	.624
	b) Clerical staff	.700
	e) Other support staff	.700

Factor 4: The Principal as One Who Promotes School Activities and Maintains Coordination and Communication with Parents and Community (Means Items)

Items Loading $\geq$ .50

	Item	Factor Loadings
1.	Promotes school sponsored activities	.650
4.	Promotes events held to recognize student achievement	.609
35.	Maintains effective communications with:	
	a) Parents	.566
	d) Local Community Groups	.649
48.	Coordinates resources to maintain an attractive school building	.567
51.	Has the support of parents	.515
56.	In the budget process, involves:	
	b) Community	.562

Factor 5: The Principal's Commitment to Administrative Regulations, Student Performance and Capabilities (Means Items)

Items Loading $\geq$ .45

Item	Factor Loadings
2. Demonstrates a commitment to academic goals	.482
3. Has a high level of expectations for students' academic performance	.487
7. Complies with regulations and policies:	
a) District	.724
b) State/Federal	.783
9. Sees all students as capable of learning regardless of race or social class	.528
10. Affords students due process rights	.469
11. Assures the safety and welfare of:	
a) Students	.491
45. Implements district policy and regulations (policy manual) by the book	.599

Factor 6: The Principal as a Monitor of Instruction and School Activities (Means Items)

Items Loading $\geq$ .40

Item	Factor Loadings
28. Provides adequate supervision of: a) Teachers	.410
59. Is seen in the halls on a regular basis	.784
60. Spends a majority (90%) of the school day and week in the school building	.675
61. Gets out of the office into the building a majority (70%) of the school day	.777
62. Regularly visits and observes in my classroom with a specific purpose in mind	.601
64. Gives frequent feedback on evaluation (formal and informal) of teacher performance	.431

Factor 1: Perceptions of the Principal as an Affectively-Oriented Manager with Good Interpersonal Skills (Cohesiveness Items)

Items Loading $\geq$ .60

	Item	Factor Loadings
5.	Has realistic expectations of teachers	.656
19.	Is a good spokesperson for staff's interests and needs	.599
30.	Welcomes new ideas	.609
26.	Manages conflict and ambiguity successfully	.614
31.	Maintains a positive attitude	.689
34.	Has the support of the staff	.700
35.	Maintains effective communications with: b) Teachers	.647
37.	Treats staff with respect	.721
39.	Is open and friendly	.667
40.	Makes teachers proud to be part of this school staff	.600
49.	Has the support of the school and business community	.598

Factor 2: Orientation of the Principal Toward Regulatory, Academic, and Behavior Management Foci (Commitment to Standards and Egalitarian Values and to Educational Practices) (Cohesiveness Items)

Items Loading $\geq$ .40

	Item	Factor Loadings
2.	Demonstrates a commitment to academic goals	.435
3.	Has a high level of expectations for students' academic performance	.483
6.	Maintains high standards of student conduct	.465
7.	Complies with regulations and policies:	
	a) District	.783
	b) State/Federal	.787
9.	Sees all students as capable of learning regardless of race or social class	.594
10.	Affords students due process rights	.403
11.	Assures the safety and welfare of:	
	a) Students	.623
	b) Staff	.463
12.	Exhibits professional ethics	.514
15.	Recognizes effective educational practices	.414
17.	Maintains climate that is conducive to learning	.426
21.	Demonstrates sensitivity to needs of various ethnic groups	.457
35.	Maintains effective communications with:	
	a) Parents	.449
45.	Implements district policy and regulations (policy manual) by the book	.586

Factor 3: The Principal as an Active, Visible Monitor of School Activities and Classroom Instruction (Cohesiveness Items)

Items Loading $\geq$ .40

	Item	Factor Loadings
28.	Provides adequate supervision of: a) Teachers	.514
33.	Works on a face-to-face basis with individual staff members	.401
59.	Is seen in the halls on a regular basis	.759
60.	Spends a majority (90%) of the school day and week in the school building	.658
61.	Gets out of the office into the building a majority (70%) of the school day	.819
62.	Regularly visits and observes in my classroom with a specific purpose in mind	.533
64.	Gives frequent feedback on evaluation (formal and informal) of teacher performance	.420

Factor 4: Principal's Orientation Toward Discipline and Order (Cohesiveness Items)

Items Loading ≥ .40

	Item	Factor Loadings
6.	Maintains high standards of student conduct	.542
17.	Maintains climate that is conducive to learning	.396
38.	Could be called an "authoritative democratic" leader	.433
41.	Creates an atmosphere of order and discipline school-wide	.682
42.	Supports teacher's efforts to maintain discipline	.589
43.	Minimizes factors that disrupt the learning process	.483
44.	Has rules that are few and simple	.439

Factor 5: Principal as One Whose Management Style is to Involve Significant Others in Decision-Making Processes (Cohesiveness Items)

Items Loading $\geq$ .40

	Item	Factor Loadings
4.	Promotes events held to recognize student achievement	.403
14.	Involves staff in developing inservice activities to meet:	
	a) Organizational needs	.761
	b) Individual needs	.762
18.	Directly involves teachers in instructional policy	.474
56.	In the budget process, involves:	
	a) Staff	.521
	b) Community	.527

Factor 6: Orientation Toward Materials, Staff, and Economic Concerns (Cohesiveness Items)

Items Loading $\geq$ .40

	Item	Factor Loadings
52.	Provides staff with necessary materials and equipment	.610
53.	Manages the building budget effectively	.589
54.	Secures school property, equipment and supplies effectively	.712
57.	Selects qualified:	
	b) Clerical staff	.422
	e) Other support staff	.602

Factor 7: The Principal as a Student-Oriented Manager, with Concern for Communication, Academics, and Administrative Details (Cohesiveness Items)

Items Loading ≥ .35

	Item	Factor Loadings
1.	Promotes school sponsored activities	.610
2.	Demonstrates a commitment to academic goals	.400
4.	Promotes events held to recognize student achievement	.553
10.	Affords students due process rights	.381
35.	Maintains effective communications with:	
	c) Students	.357
	d) Local Community Groups	.415
46.	Plans ahead	.381
47.	Effectively maintains records and other paperwork	.351
52.	Provides staff with necessary materials and equipment	.350

Factor 8: The Principal as a Source of Supervision and Support (Manager of Internal and External Forces (Cohesiveness Items)

Items Loading $\geq$ .35

	Item	Factor Loadings
28.	Provides adequate supervision of:	
	a) Teachers	.464
	c) Clerical	.377
43.	Minimizes factors that disrupt the learning process	.400
50.	Has the support of the Central Office	.718
51.	Has the support of parents	.362

Factor 9: Adaptivity, Management, and Personnel Selection in the Principal Role (Cohesiveness Items)

Items Loading $\geq$ .35

	Item	Factor Loadings
23.	Anticipates and adapts to rapidly changing human, social, and environmental conditions	.346
25.	Uses effective managerial practices	.360
57.	Selects qualified:	
	a) Teachers	.473
	b) Clerical staff	.444

Factor 10: The Principal as a Goal-Oriented and Feedback-Oriented Manager (Cohesiveness Items)

Items Loading $\geq$ .30

	Item	Factor Loadings
25.	Uses effective managerial practices	.305
46.	Plans ahead	.327
62.	Regularly visits and observes in my classroom with a specific purpose in mind	.377
64.	Gives frequent feedback on evaluation (formal and informal) of teacher performance	.395
65.	Uses pupil achievement as a basis of school/teacher effectiveness	.333

Factor 11: Problem-Solving Leadership Style -- Effective Interpersonal Skills (Cohesiveness Items)

Items Loading $\geq$ .30

	Item	Factor Loadings
10.	Affords students due process rights	.297
33.	Works on a face-to-face basis with individual staff members	.320
55.	Makes logical room assignments	.331
66.	Directs complaints to the person responsible, not entire faculty	.540
67.	Reprimands individually, privately, not in front of others	.378
68.	Evaluates staff in such a way as to motivate them to perform better	.407

Appendix B: Correlation Results
of Survey Items With Achievement

TABLE 1

Correlations between achievement variables and mean ratings on each survey item.

SPSS BATCH SYSTEM 08/03/84

FILE CUAPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SUBFILE S1 S2 S3 S4

PEARSON CORRELATION COEFFICIENTS

	TRNC83*	TRNC84	TMNC83	TMNC84
M01 **	0.1649	0.2072	0.2411	0.2603
	(89)	(89)	(89)	(89)
	P=0.122	P=0.051	P=0.023	P=0.014
M02	0.2852	0.3175	0.3525	0.4007
	(89)	(89)	(89)	(89)
	P=0.007	P=0.002	P=0.001	P=0.000
M03	0.2457	0.2986	0.2933	0.3619
	(89)	(89)	(89)	(89)
	P=0.020	P=0.004	P=0.005	P=0.000
M04	0.0629	0.1304	0.1099	0.1845
	(89)	(89)	(89)	(89)
	P=0.558	P=0.223	P=0.305	P=0.083
M05	0.0579	0.1239	0.1820	0.2656
	(89)	(89)	(89)	(89)
	P=0.590	P=0.248	P=0.088	P=0.012
M06	0.0983	0.1703	0.1640	0.2277
	(89)	(89)	(89)	(89)
	P=0.359	P=0.111	P=0.125	P=0.032
M07A	0.1464	0.1866	0.1987	0.2686
	(89)	(89)	(89)	(89)
	P=0.171	P=0.080	P=0.062	P=0.011
M07B	0.1435	0.1831	0.1703	0.2559
	(89)	(89)	(89)	(89)
	P=0.180	P=0.086	P=0.111	P=0.016
M08	0.0906	0.1433	0.1909	0.2564
	(89)	(89)	(89)	(89)
	P=0.399	P=0.180	P=0.073	P=0.015
M09	0.1189	0.1830	0.1610	0.2750
	(89)	(89)	(89)	(89)
	P=0.267	P=0.086	P=0.132	P=0.009

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

*TRNC83 = Total Reading NCE Score for the 1982-83 School Year
TRNC84 = Total Reading NCE Score for the 1983-84 School Year
TMNC83 = Total Math NCE Score for the 1982-83 School Year
TMNC84 = Total Math NCE Score for the 1983-84 School Year

**"M" refers to the representation of mean ratings on survey items.
The item number corresponds to the actual survey item

Table 1 continued

SPSS BATCH SYSTEM 08/03/84

FILE COMPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SUBFILE S1 S2 S3 S4

PEARSON CORRELATION COEFFICIENTS

	TRNC83	TRNC84	TMNC83	TMNC84
M10	0.2870	0.2755	0.3144	0.3496
	(89)	(89)	(89)	(89)
	P=0.006	P=0.009	P=0.003	P=0.001
M11A	0.1880	0.2673	0.2295	0.3129
	(89)	(89)	(89)	(89)
	P=0.078	P=0.011	P=0.030	P=0.003
M11B	0.1602	0.2574	0.2482	0.3255
	(89)	(89)	(89)	(89)
	P=0.134	P=0.019	P=0.019	P=0.002
M12	0.1817	0.2036	0.2653	0.2974
	(89)	(89)	(89)	(89)
	P=0.088	P=0.056	P=0.012	P=0.005
M13	0.1569	0.2258	0.2428	0.3495
	(89)	(89)	(89)	(89)
	P=0.142	P=0.033	P=0.022	P=0.001
M14A	0.1671	0.2452	0.2844	0.3800
	(89)	(89)	(89)	(89)
	P=0.118	P=0.021	P=0.007	P=0.000
M14B	0.1512	0.2102	0.2898	0.3617
	(89)	(89)	(89)	(89)
	P=0.157	P=0.048	P=0.006	P=0.000
M15	0.1312	0.1710	0.2412	0.3034
	(89)	(89)	(89)	(89)
	P=0.220	P=0.109	P=0.023	P=0.004
M16	0.1551	0.2089	0.2341	0.2880
	(89)	(89)	(89)	(89)
	P=0.147	P=0.049	P=0.027	P=0.006
M17	0.1358	0.2250	0.2566	0.3376
	(89)	(89)	(89)	(89)
	P=0.204	P=0.034	P=0.015	P=0.001

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

Table 1 continued

SPSS BATCH SYSTEM 08/03/84

FILE COMPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SUBFILE S1 S2 S3 S4

PEARSON CORRELATION COEFFICIENTS

	TRNC83	TRNC84	TMNC83	TMNC84
M18	0.1050	0.2145	0.2699	0.3668
	(89)	(89)	(89)	(89)
	P=0.327	P=0.043	P=0.011	P=0.000
M19	0.0988	0.1678	0.2338	0.2899
	(89)	(89)	(89)	(89)
	P=0.357	P=0.116	P=0.027	P=0.006
M20	0.1918	0.2316	0.3230	0.3467
	(89)	(89)	(89)	(89)
	P=0.072	P=0.029	P=0.002	P=0.001
M21	0.0845	0.1531	0.1830	0.2595
	(89)	(89)	(89)	(89)
	P=0.431	P=0.152	P=0.086	P=0.014
M22	0.0955	0.1760	0.2246	0.2907
	(89)	(89)	(89)	(89)
	P=0.373	P=0.099	P=0.034	P=0.006
M23	0.1336	0.1864	0.2436	0.2751
	(89)	(89)	(89)	(89)
	P=0.212	P=0.080	P=0.021	P=0.009
M24	0.1858	0.2333	0.2918	0.3370
	(89)	(89)	(89)	(89)
	P=0.081	P=0.028	P=0.006	P=0.001
M25	0.2127	0.2436	0.3281	0.3359
	(89)	(89)	(89)	(89)
	P=0.045	P=0.021	P=0.002	P=0.001
M26	0.1326	0.1772	0.2437	0.2721
	(89)	(89)	(89)	(89)
	P=0.216	P=0.097	P=0.021	P=0.010
M27	0.1486	0.1852	0.2454	0.2729
	(89)	(89)	(89)	(89)
	P=0.165	P=0.082	P=0.020	P=0.010

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

Table 1 continued

SPSS BATCH SYSTEM 08/03/84

FILE COMPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SUBFILE S1 S2 S3 S4

PEARSON CORRELATION COEFFICIENTS

	TRNC83	TRNC84	TMNC83	TMNC84
M28A	0.2319	0.2792	0.3029	0.3305
	(89)	(89)	(89)	(89)
	P=0.029	P=0.008	P=0.004	P=0.002
M28B	0.1988	0.2078	0.2302	0.2227
	(89)	(89)	(89)	(89)
	P=0.062	P=0.051	P=0.030	P=0.036
M28C	0.2101	0.2882	0.2580	0.3315
	(89)	(89)	(89)	(89)
	P=0.048	P=0.006	P=0.015	P=0.002
M28D	-0.1045	-0.0084	-0.0056	0.0765
	(52)	(52)	(52)	(52)
	P=0.461	P=0.953	P=0.968	P=0.590
M29	0.0751	0.1407	0.1640	0.2266
	(89)	(89)	(89)	(89)
	P=0.484	P=0.188	P=0.125	P=0.033
M30	0.0533	0.1049	0.2022	0.2071
	(89)	(89)	(89)	(89)
	P=0.620	P=0.328	P=0.057	P=0.051
M31	0.0475	0.0872	0.1685	0.1804
	(89)	(89)	(89)	(89)
	P=0.658	P=0.417	P=0.114	P=0.091
M32	0.0645	0.1229	0.1799	0.2408
	(89)	(89)	(89)	(89)
	P=0.548	P=0.251	P=0.092	P=0.023
M33	0.0651	0.1602	0.1735	0.2837
	(89)	(89)	(89)	(89)
	P=0.544	P=0.134	P=0.104	P=0.007
M34	0.1177	0.1935	0.2590	0.3055
	(89)	(89)	(89)	(89)
	P=0.272	P=0.069	P=0.014	P=0.004

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

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Table 1 continued

SPSS BATCH SYSTEM 08/03/84

FILE COMPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SUBFILE S1 S2 S3 S4

PEARSON CORRELATION COEFFICIENTS

	TRNC83	TRNC84	TMNC83	TMNC84
M35A	0.1089	0.1549	0.1863	0.2240
	(89)	(89)	(89)	(89)
	P=0.310	P=0.147	P=0.080	P=0.035
M35B	0.0976	0.1721	0.2593	0.3041
	(89)	(89)	(89)	(89)
	P=0.363	P=0.107	P=0.014	P=0.004
M35C	0.1155	0.1787	0.2080	0.2674
	(89)	(89)	(89)	(89)
	P=0.281	P=0.094	P=0.051	P=0.011
M35D	0.1344	0.1782	0.2316	0.2656
	(89)	(89)	(89)	(89)
	P=0.209	P=0.095	P=0.029	P=0.012
M36	0.1161	0.1538	0.2294	0.2673
	(89)	(89)	(89)	(89)
	P=0.278	P=0.150	P=0.031	P=0.011
M37	0.0309	0.0856	0.1607	0.2042
	(89)	(89)	(89)	(89)
	P=0.774	P=0.425	P=0.132	P=0.055
M38	0.1132	0.1466	0.2087	0.2527
	(89)	(89)	(89)	(89)
	P=0.291	P=0.170	P=0.050	P=0.017
M39	0.0355	0.1063	0.1674	0.2022
	(89)	(89)	(89)	(89)
	P=0.741	P=0.321	P=0.117	P=0.057
M40	0.1261	0.1928	0.2643	0.3024
	(89)	(89)	(89)	(89)
	P=0.239	P=0.070	P=0.012	P=0.004
M41	0.1536	0.2201	0.2208	0.2566
	(89)	(89)	(89)	(89)
	P=0.151	P=0.038	P=0.038	P=0.015

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

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Table 1 continued

SPSS BATCH SYSTEM 08/03/84

FILE CGMPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SUBFILE S1 S2 S3 S4

- - - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	TRNC83	TRNC84	TMNC83	TMNC84
M42	0.0463	0.0974	0.1442	0.1539
	(89)	(89)	(89)	(89)
	P=0.666	P=0.364	P=0.178	P=0.150
M43	0.1247	0.1766	0.2137	0.2598
	(89)	(89)	(89)	(89)
	P=0.244	P=0.098	P=0.044	P=0.014
M44	0.1147	0.1775	0.2288	0.2677
	(89)	(89)	(89)	(89)
	P=0.284	P=0.096	P=0.031	P=0.011
M45	0.2067	0.2758	0.2258	0.3296
	(89)	(89)	(89)	(89)
	P=0.059	P=0.009	P=0.033	P=0.002
M46	0.1442	0.1986	0.2079	0.2438
	(89)	(89)	(89)	(89)
	P=0.177	P=0.062	P=0.051	P=0.021
M47	0.2145	0.2770	0.2615	0.3076
	(89)	(89)	(89)	(89)
	P=0.044	P=0.009	P=0.013	P=0.003
M48	0.1835	0.2100	0.2477	0.2373
	(89)	(89)	(89)	(89)
	P=0.085	P=0.048	P=0.019	P=0.025
M49	0.1490	0.2207	0.2613	0.2967
	(89)	(89)	(89)	(89)
	P=0.164	P=0.038	P=0.013	P=0.005
M50	0.3125	0.3958	0.3472	0.3950
	(89)	(89)	(89)	(89)
	P=0.003	P=0.000	P=0.001	P=0.000
M51	0.2227	0.2757	0.3166	0.3505
	(89)	(89)	(89)	(89)
	P=0.036	P=0.009	P=0.003	P=0.001

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

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Table 1 continued

SPSS BATCH SYSTEM 08/03/84

FILE COMPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SUBFILE S1 S2 S3 S4

PEARSON CORRELATION COEFFICIENTS

	TRNC83	TRNC84	TMNC83	TMNC84
M52	0.2105	0.2832	0.3918	0.4174
	(89)	(89)	(89)	(89)
	P=0.048	P=0.007	P=0.000	P=0.000
M53	0.2482	0.2947	0.3781	0.3937
	(89)	(89)	(89)	(89)
	P=0.019	P=0.005	P=0.000	P=0.000
M54	0.2309	0.2882	0.3781	0.3871
	(89)	(89)	(89)	(89)
	P=0.029	P=0.006	P=0.000	P=0.000
M55	0.1693	0.2269	0.2680	0.3297
	(89)	(89)	(89)	(89)
	P=0.113	P=0.033	P=0.011	P=0.002
M56A	0.1942	0.2514	0.3052	0.3477
	(89)	(89)	(89)	(89)
	P=0.068	P=0.017	P=0.004	P=0.001
M56B	0.2316	0.2422	0.3483	0.3325
	(89)	(89)	(89)	(89)
	P=0.029	P=0.022	P=0.001	P=0.001
M57A	0.3491	0.3808	0.3893	0.4247
	(89)	(89)	(89)	(89)
	P=0.001	P=0.000	P=0.000	P=0.000
M57B	0.3165	0.4187	0.3789	0.4688
	(89)	(89)	(89)	(89)
	P=0.003	P=0.000	P=0.000	P=0.000
M57C	0.1735	0.2132	0.2157	0.2174
	(88)	(88)	(88)	(88)
	P=0.106	P=0.046	P=0.044	P=0.042
M57D	0.1366	0.1883	0.1162	0.2242
	(52)	(52)	(52)	(52)
	P=0.334	P=0.181	P=0.412	P=0.110

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

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Table 1 continued

SPSS BATCH SYSTEM 08/03/84

FILE COMPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SJBFILE S1 S2 S3 S4

PEARSON CORRELATION COEFFICIENTS

	TRNC83	TRNC84	THNC83	THNC84
M57E	0.3686	0.4304	0.4423	0.4645
	(89)	(89)	(89)	(89)
	P=0.000	P=0.000	P=0.000	P=0.000
M58	0.1522	0.1915	0.2563	0.2946
	(89)	(89)	(89)	(89)
	P=0.154	P=0.072	P=0.015	P=0.005
M59	0.0336	0.0063	0.0943	0.1200
	(89)	(89)	(89)	(89)
	P=0.755	P=0.421	P=0.379	P=0.263
M60	0.1042	0.1632	0.1399	0.1998
	(89)	(89)	(89)	(89)
	P=0.331	P=0.127	P=0.191	P=0.061
M61	0.0039	0.0646	0.0932	0.1149
	(89)	(89)	(89)	(89)
	P=0.971	P=0.548	P=0.385	P=0.283
M62	0.0456	0.1351	0.1491	0.2179
	(89)	(89)	(89)	(89)
	P=0.671	P=0.207	P=0.163	P=0.040
M63	0.0951	0.1751	0.1973	0.2745
	(89)	(89)	(89)	(89)
	P=0.375	P=0.101	P=0.064	P=0.009
M64	0.0596	0.1250	0.1732	0.2260
	(89)	(89)	(89)	(89)
	P=0.579	P=0.243	P=0.105	P=0.033
M65	0.2751	0.3143	0.3651	0.3963
	(89)	(89)	(89)	(89)
	P=0.009	P=0.003	P=0.000	P=0.000
M66	0.2356	0.2744	0.3371	0.3659
	(89)	(89)	(89)	(89)
	P=0.026	P=0.009	P=0.001	P=0.000

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

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Table 1 continued

SPSS BATCH SYSTEM 08/03/84

FILE COMPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SUBFILE S1 S2 S3 S4

PEARSON CORRELATION COEFFICIENTS

	TRNC83	TRNC84	TMNC83	TMNC84
M67	0.0904	0.1249	0.2040	0.2501
	(89)	(89)	(89)	(89)
	P=0.400	P=0.243	P=0.055	P=0.018
M68	0.0832	0.1719	0.2258	0.3072
	(89)	(89)	(89)	(89)
	P=0.438	P=0.108	P=0.033	P=0.003

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

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TABLE 2

Correlations between achievement variables and cohesiveness ratings on each survey item.

SPSS BATCH SYSTEM 08/03/84

FILE COMPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SUBFILE S1 S2 S3 S4

PEARSON CORRELATION COEFFICIENTS

	TRNC83 *	TRNC84	TMNC83	TMNC84
NG01 **	0.2267	0.2144	0.2136	0.2731
	(89)	(89)	(89)	(89)
	P=0.031	P=0.044	P=0.009	P=0.010
NG02	0.3248	0.2956	0.3922	0.3877
	(89)	(89)	(89)	(89)
	P=0.002	P=0.005	P=0.000	P=0.000
NG03	0.2715	0.2776	0.3219	0.3493
	(89)	(89)	(89)	(89)
	P=0.010	P=0.008	P=0.002	P=0.001
NG04	0.0641	0.0760	0.1214	0.1546
	(89)	(89)	(89)	(89)
	P=0.550	P=0.474	P=0.257	P=0.148
NG05	0.1588	0.2248	0.2737	0.3431
	(89)	(89)	(89)	(89)
	P=0.062	P=0.034	P=0.009	P=0.001
NG06	0.1608	0.1920	0.1975	0.2666
	(89)	(89)	(89)	(89)
	P=0.132	P=0.071	P=0.064	P=0.012
NG07A	0.1746	0.2652	0.2344	0.3627
	(89)	(89)	(89)	(89)
	P=0.102	P=0.012	P=0.016	P=0.000
NG07B	0.1333	0.2045	0.1900	0.2882
	(89)	(89)	(89)	(89)
	P=0.213	P=0.055	P=0.075	P=0.006
NG08	0.1522	0.2014	0.2435	0.3237
	(89)	(89)	(89)	(89)
	P=0.154	P=0.058	P=0.021	P=0.002
NG09	0.0970	0.1247	0.1294	0.2176
	(89)	(89)	(89)	(89)
	P=0.366	P=0.244	P=0.227	P=0.041

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED

*TRNC83 = Total Reading NCE Score for the 1982-83 School Year
TRNC84 = Total Reading NCE Score for the 1983-84 School Year
TMNC83 = Total Math NCE Score for the 1982-83 School Year
TMNC84 = Total Math NCE Score for the 1983-84 School Year
**"NG" refers to the representation of cohesiveness ratings on survey items.
The item number corresponds to the actual survey item

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Table 2 continued

SPSS BATCH SYSTEM 08/03/84

FILE COMPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SUBFILE S1 S2 S3 S4

PEARSON CORRELATION COEFFICIENTS

	TRNC83	TRNC84	[illegible]	TRNC84
NG10	0.2338 (89) P=0.027	0.2381 (89) P=0.025	[illegible]	0.3318 (89) P=0.001
NG11A	0.1590 (89) P=0.137	0.2298 (89) P=0.030	[illegible]	0.2988 (89) P=0.004
NG11B	0.2119 (89) P=0.046	0.2764 (89) P=0.009	[illegible]	0.3850 (89) P=0.000
NG12	0.2478 (89) P=0.019	0.2827 (89) P=0.007	[illegible]	0.3991 (89) P=0.000
NG13	0.0978 (89) P=0.362	0.1919 (89) P=0.072	[illegible]	0.2876 (89) P=0.006
NG14A	0.2448 (89) P=0.021	0.2820 (89) P=0.007	[illegible]	0.3820 (89) P=0.000
NG14B	0.2798 (89) P=0.008	0.3232 (89) P=0.002	[illegible]	0.4088 (89) P=0.000
NG15	0.1997 (89) P=0.061	0.2457 (89) P=0.020	[illegible]	0.3550 (89) P=0.001
NG16	0.1743 (89) P=0.102	0.2655 (89) P=0.012	[illegible]	0.3148 (89) P=0.003
NG17	0.2142 (89) P=0.044	0.2655 (89) P=0.012	[illegible]	0.3681 (89) P=0.000

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

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Table 2 continued

SPSS BATCH SYSTEM 08/03/84

FILE CLMPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SUBFILE S1 S2 S3 S4

PEARSON CORRELATION COEFFICIENTS

	TMNC83	TMNC84	TMNC83	TMNC84
NG18	0.1713	0.2476	0.3194	0.3899
	(85)	(89)	(89)	(89)
	P=0.108	P=0.019	P=0.001	P=0.000
NG19	0.1562	0.2003	0.2748	0.3046
	(89)	(89)	(89)	(89)
	P=0.149	P=0.060	P=0.009	P=0.004
NG20	0.2074	0.2015	0.3283	0.3174
	(89)	(89)	(89)	(89)
	P=0.051	P=0.058	P=0.002	P=0.002
NG21	0.1114	0.1589	0.2235	0.2843
	(89)	(89)	(89)	(89)
	P=0.299	P=0.137	P=0.035	P=0.007
NG22	0.1754	0.2484	0.2918	0.3510
	(89)	(89)	(89)	(89)
	P=0.100	P=0.019	P=0.006	P=0.001
NG23	0.1801	0.2131	0.2510	0.2945
	(89)	(89)	(89)	(89)
	P=0.091	P=0.045	P=0.017	P=0.005
NG24	0.2391	0.2563	0.3385	0.3792
	(89)	(89)	(89)	(89)
	P=0.024	P=0.015	P=0.001	P=0.000
NG25	0.2231	0.2267	0.3069	0.3142
	(89)	(89)	(89)	(89)
	P=0.036	P=0.038	P=0.003	P=0.003
NG26	0.1650	0.1766	0.2582	0.2790
	(89)	(89)	(89)	(89)
	P=0.175	P=0.098	P=0.031	P=0.008
NG27	0.1446	0.1436	0.2264	0.2235
	(89)	(89)	(89)	(89)
	P=0.176	P=0.179	P=0.033	P=0.035

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

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Table 2 continued

SPSS BATCH SYSTEM 08/03/84

FILE CUMPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SUBFILE S1 S2 S3 S4

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	TRNC83	TRNC84	TMNC83	TMNC84
NG28A	0.2489	0.2592	0.2773	0.2828
	(89)	(89)	(89)	(89)
	P=0.019	P=0.014	P=0.009	P=0.007
NG28B	0.1982	0.2424	0.2630	0.2821
	(88)	(88)	(88)	(88)
	P=0.064	P=0.023	P=0.013	P=0.008
NG28C	0.2251	0.2864	0.2975	0.3692
	(89)	(89)	(89)	(89)
	P=0.034	P=0.007	P=0.005	P=0.000
NG28D	0.2591	0.4574	0.3452	0.5203
	(39)	(39)	(39)	(39)
	P=0.111	P=0.003	P=0.031	P=0.001
NG29	0.1643	0.2129	0.2228	0.2907
	(89)	(89)	(89)	(89)
	P=0.124	P=0.045	P=0.036	P=0.006
NG30	0.1387	0.1590	0.2700	0.2525
	(89)	(89)	(89)	(89)
	P=0.195	P=0.137	P=0.010	P=0.017
NG31	0.0534	0.1202	0.1840	0.2042
	(89)	(89)	(89)	(89)
	P=0.384	P=0.262	P=0.084	P=0.055
NG32	0.0550	0.1531	0.1943	0.2670
	(89)	(89)	(89)	(89)
	P=0.376	P=0.152	P=0.068	P=0.011
NG33	0.1847	0.2667	0.2914	0.3805
	(89)	(89)	(89)	(89)
	P=0.083	P=0.012	P=0.006	P=0.000
NG34	0.0846	0.1509	0.1466	0.2350
	(89)	(89)	(89)	(89)
	P=0.431	P=0.158	P=0.170	P=0.027

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

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Table 2 continued

SPSS BATCH SYSTEM 08/03/84

FILE COMPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SUBFILE S1 S2 S3 S4

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - -

	TRNC83	TRNC84	TMNC83	TMNC84
NG35A	0.2000	0.2339	[illegible]	0.2953
	(89)	(89)	([illegible])	(89)
	P=0.060	P=0.027	P=[illegible]	P=0.005
NG35B	0.2129	0.2733	[illegible]	0.3799
	(89)	(89)	([illegible])	(89)
	P=0.045	P=0.010	P=[illegible]	P=0.000
NG35C	0.2070	0.2431	[illegible]	0.3274
	(89)	(89)	([illegible])	(89)
	P=0.052	P=0.022	P=[illegible]	P=0.002
NG35D	0.1712	0.2106	[illegible]	0.2927
	(89)	(89)	([illegible])	(89)
	P=0.109	P=0.048	P=[illegible]	P=0.005
NG36	0.1821	0.2092	[illegible]	0.3096
	(89)	(89)	([illegible])	(89)
	P=0.088	P=0.049	P=[illegible]	P=0.003
NG37	0.0956	0.1570	[illegible]	0.2637
	(89)	(89)	([illegible])	(89)
	P=0.353	P=0.142	P=[illegible]	P=0.013
NG38	0.2319	0.2118	[illegible]	0.2857
	(89)	(89)	([illegible])	(89)
	P=0.029	P=0.046	P=[illegible]	P=0.007
NG39	0.0353	0.1083	[illegible]	0.1882
	(89)	(89)	([illegible])	(89)
	P=0.743	P=0.313	P=[illegible]	P=0.077
NG40	0.2139	[illegible]	[illegible]	0.3592
	(89)	(89)	([illegible])	(89)
	P=0.044	P=0.016	P=[illegible]	P=0.001
NG41	0.2656	0.2814	[illegible]	0.3398
	(89)	(89)	([illegible])	(89)
	P=0.011	P=0.008	P=[illegible]	P=0.001

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

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Table 2 continued

SPSS BATCH SYSTEM 08/03/84

FILE CCMPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SUBFILE S1 S2 S3 S4

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	TRNC83	TRNC84	TMNC83	TMNC84
NG42	0.0538	0.1257	0.1989	0.2218
	(89)	(89)	(89)	(89)
	P=0.382	P=0.240	P=0.062	P=0.037
NG43	0.1892	0.2063	0.2486	0.2720
	(89)	(89)	(89)	(89)
	P=0.076	P=0.052	P=0.019	P=0.010
NG44	0.1976	0.2189	0.2938	0.3265
	(89)	(89)	(89)	(89)
	P=0.063	P=0.038	P=0.005	P=0.002
NG45	0.1974	0.2857	0.2111	0.3582
	(89)	(89)	(89)	(89)
	P=0.064	P=0.007	P=0.047	P=0.001
NG46	0.2037	0.2279	0.2770	0.3287
	(89)	(89)	(89)	(89)
	P=0.055	P=0.032	P=0.009	P=0.002
NG47	0.2433	0.2938	0.2894	0.3384
	(89)	(89)	(89)	(89)
	P=0.022	P=0.005	P=0.006	P=0.001
NG48	0.2376	0.2549	0.2660	0.2685
	(89)	(89)	(89)	(89)
	P=0.025	P=0.016	P=0.012	P=0.011
NG49	0.1364	0.2041	0.2333	0.2926
	(89)	(89)	(89)	(89)
	P=0.203	P=0.055	P=0.028	P=0.005
NG50	0.2544	0.3178	0.2151	0.2934
	(89)	(89)	(89)	(89)
	P=0.016	P=0.002	P=0.043	P=0.005
NG51	0.1926	0.1939	0.2768	0.2840
	(89)	(89)	(89)	(89)
	P=0.071	P=0.069	P=0.009	P=0.007

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF .9999 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

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Table 2 continued

SPSS BATCH SYSTEM 08/03/84

FILE COMPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SUBFILE $1 $2 $3 $4

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	TRNC83	TRNC84	TRNC83	TRNC84
NG52	0.2515	0.2669	0.3806	0.3942
	(89)	(89)	(89)	(89)
	P=0.017	P=0.011	P=0.000	P=0.000
NG53	0.2906	0.2853	0.4130	0.3947
	(89)	(89)	(89)	(89)
	P=0.006	P=0.007	P=0.000	P=0.000
NG54	0.2202	0.2749	0.3883	0.3926
	(89)	(89)	(89)	(89)
	P=0.038	P=0.009	P=0.000	P=0.000
NG55	0.1681	0.2253	0.2866	0.3721
	(89)	(89)	(89)	(89)
	P=0.063	P=0.034	P=0.000	P=0.000
NG56A	0.2489	0.3093	0.3996	0.4135
	(89)	(89)	(89)	(89)
	P=0.019	P=0.003	P=0.000	P=0.000
NG56B	0.1551	0.2405	0.2879	0.2949
	(89)	(89)	(89)	(89)
	P=0.067	P=0.023	P=0.015	P=0.005
NG57A	0.4579	0.4429	0.4861	0.5042
	(89)	(89)	(89)	(89)
	P=0.000	P=0.000	P=0.000	P=0.000
NG57B	0.2681	0.3968	0.3133	0.4319
	(89)	(89)	(89)	(89)
	P=0.006	P=0.000	P=0.003	P=0.000
NG57C	0.1456	0.2152	0.2282	0.2464
	(86)	(86)	(86)	(86)
	P=0.184	P=0.047	P=0.026	P=0.022
NG57D	0.1468	0.2997	0.1396	0.3631
	(38)	(38)	(38)	(38)
	P=0.379	P=0.068	P=0.404	P=0.025

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

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Table 2 continued

SPSS BATCH SYSTEM 08/03/84

FILE CUMPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SUBFILE S1 S2 S3 S4

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	TRNC83	TRNC84	TRNC83	TRNC84
NG57E	0.3411	0.3683	0.3799	0.3910
	(891)	(891)	(891)	(891)
	P=0.001	P=0.000	P=0.000	P=0.000
NG58	0.1922	0.2179	0.2628	0.3149
	(891)	(891)	(891)	(891)
	P=0.071	P=0.040	P=0.013	P=0.003
NG59	0.1274	0.1209	0.1747	0.1662
	(891)	(891)	(891)	(891)
	P=0.234	P=0.228	P=0.102	P=0.120
NG60	0.1673	0.2382	0.2322	0.2963
	(891)	(891)	(891)	(891)
	P=0.117	P=0.025	P=0.029	P=0.005
NG61	0.0049	0.0439	0.0972	0.0946
	(891)	(891)	(891)	(891)
	P=0.964	P=0.683	P=0.365	P=0.378
NG62	0.0300	0.0480	0.1625	0.2059
	(891)	(891)	(891)	(891)
	P=0.780	P=0.663	P=0.128	P=0.053
NG63	0.0642	0.1530	0.1612	0.2918
	(891)	(891)	(891)	(891)
	P=0.550	P=0.192	P=0.131	P=0.006
NG64	0.1096	0.1584	0.2030	0.2489
	(891)	(891)	(891)	(891)
	P=0.306	P=0.146	P=0.056	P=0.019
NG65	0.2754	0.2869	0.4216	0.4222
	(891)	(891)	(891)	(891)
	P=0.009	P=0.007	P=0.000	P=0.000
NG66	0.2600	0.2695	0.3892	0.3993
	(891)	(891)	(891)	(891)
	P=0.014	P=0.011	P=0.000	P=0.000

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

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Table 2 continued

SPSS BATCH SYSTEM 08/03/84

FILE CCMPPRIN (CREATION DATE = 07/24/84) COMPLETE SCHOOL LEVEL PRINCIPAL DATA FILE
SUBFILE S1 S2 S3 S4

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - -

	TANC83	TANC84	TMNC83	TMNC84
NB67	0.1173	0.1268	0.2521	0.2872
	(89)	(89)	(89)	(89)
	P=0.274	P=0.236	P=0.017	P=0.006
NB68	0.1815	0.2389	0.3019	0.3817
	(89)	(89)	(89)	(89)
	P=0.089	P=0.025	P=0.004	P=0.000

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

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Table 3.1 Correlations between Achievement and Factor Scores on Means and Cohesiveness (Overall N = 89)

MEANS	TRNC83	TRNC84	TMNC83	TMNC84
MFAC1	-.089	-.038	.067	.102
MFAC2	.010	.024	.037	.030
MFAC3	.375*	.442*	.458*	.483*
MFAC4	.153	.117	.159	.131
MFAC5	.209*	.213*	.126	.226*
MFAC6	-.148	-.092	-.132	-.091

COHESIVENESS	TRNC83	TRNC84	TMNC83	TMNC84
NGFAC1	-.100	-.077	-.019	-.016
NGFAC2	.058	.115	.085	.193*
NGFAC3	-.004	.022	.055	.041
NGFAC4	.101	.083	.069	.092
NGFAC5	.099	.147	.161	.205*
NGFAC6	.244*	.266*	.358*	.322*
NGFAC7	.127	.063	.118	.058
NGFAC8	.121	.128	.081	.097
NGFAC9	.291*	.301*	.245*	.309*
NGFAC10	.197*	.201*	.217*	.220*
NGFAC11	.123	.136	.158	.231*

[1] Refer to Appendix E for definitions of factors.

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Table 4.[1] Correlations between Achievement and Factor Scores on Means and Cohesiveness (Elementary N = 55)

MEANS	TRNC83	TRNC84	TMNC83	TMNC84
MFAC1	-.165	-.125	-.176	-.139
MFAC2	.117	.161	.151	.198
MFAC3	.387*	.389*	.382*	.389*
MFAC4	.114	.085	.097	.150
MFAC5	.164	.185	.154	.296*
MFAC6	-.148	-.132	-.131	-.088

COHESIVENESS	TRNC83	TRNC84	TMNC83	TMNC84
NGFAC1	-.178	-.202	-.175	-.231*
NGFAC2	.015	.126	.061	.245*
NGFAC3	-.002	-.029	.046	.031
NGFAC4	.206	.204	.202	.287*
NGFAC5	.096	.126	.081	.158
NGFAC6	.177	.131	.197	.112
NGFAC7	.123	.043	.097	.037
NGFAC8	.099	.102	.040	.103
NGFAC9	.340*	.325*	.278*	.362*
NGFAC10	.141	.140	.136	.155
NGFAC11	.139	.181	.110	.245*

[1] Refer to Appendix E for definitions of factors.

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Table 5.[1] Correlations between Achievement and Factor Scores on Means and cohesiveness (Fifth Year Center N = 13)

MEANS	TRNC83	TRNC84	TMNC83	TMNC84
MFAC1	.227	.143	.479*	.420
MFAC2	-.122	-.309	.026	-.158
MFAC3	.103	.316	.088	.006
MFAC4	.139	.012	.058	-.194
MFAC5	.632*	.676*	.476*	.711*
MFAC6	-.424	-.277	-.405	-.549*

COHESIVENESS	TRNC83	TRNC84	TMNC83	TMNC84
NGFAC1	.277	.484*	.310	.523*
NGFAC2	.453	.257	.406	.424
NGFAC3	-.022	.061	.031	-.240
NGFAC4	-.001	-.280	-.023	-.276
NGFAC5	.538*	.445	.382	.216
NGFAC6	-.187	-.218	-.027	-.280
NGFAC7	-.327	-.175	-.327	-.375
NGFAC8	.327	.179	.004	-.320
NGFAC9	.002	.305	.109	.301
NGFAC10	.250	.268	.383	.321
NGFAC11	-.396	-.419	.074	.110

[1] Refer to Appendix E for definitions of factors.

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Table 6.[1] Correlations between Achievement and Factor Scores on Means and Cohesiveness (Middle School N = 11)

MEANS	TRNC83	TRNC84	TMNC83	TMNC84
MFAC1	-.515	-.501	-.550*	-.544*
MFAC2	-.202	-.199	-.407	-.312
MFAC3	.276	.370	.476	.424
MFAC4	.461	.484	.639*	.503
MFAC5	.173	.153	.019	.031
MFAC6	-.229	-.235	-.292	-.287

COHESIVENESS	TRNC83	TRNC84	TMNC83	TMNC84
NGFAC1	-.411	-.435	-.357	.140
NGFAC2	.212	.149	-.095	.000
NGFAC3	-.175	-.121	-.175	-.191
NGFAC4	-.212	-.196	-.396	-.308
NGFAC5	-.490	-.555*	-.467	-.560*
NGFAC6	.256	.370	.398	.310
NGFAC7	.368	.368	.491	.388
NGFAC8	.156	.234	.172	.251
NGFAC9	.347	.363	.196	.291
NGFAC10	.618*	.609*	.529*	.526*
NGFAC11	.521*	.594*	.581*	.613*

[1] Refer to Appendix E for definitions of factors.

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Table 7.[1] Correlations between Achievement and Factor Scores on Means and Cohesiveness (High School N = 10)

MEANS	TRNC83	TRNC84	TMNC83	TMNC84
MFAC1	-.759*	-.739*	-.565*	-.691*
MFAC2	-.389	-.462	-.613*	-.530
MFAC3	-.196	-.335	-.499	-.423
MFAC4	.235	.260	.336	.402
MFAC5	.586*	.562*	.329	.520
MFAC6	-.149	.023	-.263	-.046

COHESIVENESS	TRNC83	TRNC84	TMNC83	TMNC84
NGFAC1	-.397	-.319	-.415	-.447
NGFAC2	-.278	-.272	-.306	-.285
NGFAC3	-.241	.011	-.415	-.151
NGFAC4	-.285	-.322	-.558*	-.329
NGFAC5	-.760*	-.662*	-.743*	-.583*
NGFAC6	.279	.403	.037	.351
NGFAC7	.356	.142	.598*	.397
NGFAC8	-.217	-.172	-.131	-.068
NGFAC9	.120	-.172	.019	-.131
NGFAC10	.070	.045	.414	.137
NGFAC11	.789*	.721*	.726*	.700*

[1] Refer to Appendix E for definitions of factors.

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